

Appl. No.: 10/687,389
Response dated December 12, 2005
Reply to Office Action of August 11, 2005

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. **(Currently Amended)** A method for scoring a severity of a neurological event associated with sensed neurological signals relating to a nervous system disorder, the method comprising the steps of:
 - (a) determining that a sensed neurological signal represents at least one neurological event;
 - (a) ~~receiving from a monitoring element a neurological signal having at least one event to be scored;~~
 - (b) identifying at least one feature of the at least one neurological event ~~neurological signal~~ to use in scoring;
 - (c) computing a score of relative severity of the at least one neurological event using the identified feature[[]]; and
 - (d) ranking the at least one neurological event by severity relative to at least one other scored neurological event.
2. **(Currently Amended).** ~~The~~ A method of claim 1 wherein ~~the step of receiving comprises the step of receiving a neurological signal having an~~ at least one neurological event is selected from the group consisting of ~~a detected event, a detection cluster event, and a reported event.~~
3. **(Currently Amended)** ~~The~~ A method of claim 1, wherein the ~~step of identifying~~ at least one feature identified in (c) ~~is comprises the step of identifying a feature~~ selected from the group consisting of ~~a maximum ratio, a duration of a seizure detection, and a spread, a~~ number of clusters per unit time, a number of detections within a cluster, a duration of an event cluster, a duration of a detection, and an inter-seizure interval.
4. **(Currently Amended)** ~~The~~ A method of claim 1, further comprising ~~the step of:~~
 - (e) communicating the ranked events to an external device.

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5. (Currently Amended) ~~The A~~ method of claim 1, further comprising ~~the step of:~~
(e) displaying the ranked events.
6. (Currently Amended) ~~The A~~ method of claim 1, wherein the ~~step of ranking in~~
(d) is performed by ~~at least one device selected from the group consisting of an external device~~
~~and an implanted device.~~
7. (Currently Amended) ~~The A~~ method of claim 1, wherein the ~~step of identifying~~
the at least one feature in (b) comprises:
(i) ~~is performed using~~ algorithm-based measures of activity of the nervous
system disorder.
8. (Currently Amended) ~~The A~~ method of claim 5, wherein the nervous system
disorder is a seizure and the ~~step of computing the score in (c) comprises:~~
(i) ~~is performed~~ relating duration, intensity, and extent of electrographic
spread of the nervous system disorder.
9. (Currently Amended) ~~The A~~ method of claim 1, wherein the ~~step of computing~~
the score in (c) comprises:
(i) ~~allowing~~ a user to exclude a certain event from being scored.
10. (Currently Amended) ~~The A~~ method of claim 1 wherein the feature is selected
from the group consisting of ~~maximal intensity of the event,~~ a number of monitoring elements
involved in the event, a number of clusters per unit time, a number of detections within a
detection cluster, a duration of a detection-an event cluster, a duration of a detection, and an
inter-seizure interval.

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11. **(Currently Amended)** ~~The~~ A method of claim 1, wherein the ~~step of~~ computing the score in (c) comprises:

(i) computing a relative severity minimum, ~~wherein in which~~ the lowest relative severity score associated with clinical manifestations or other behaviors indicative of a nervous system disorder activity may be used to minimize a probability of missing clinical events.

12. **(Currently Amended)** ~~The~~ A method of claim 1, wherein the ~~step of receiving~~ comprises the ~~step of receiving the~~ neurological signal received from the monitoring element is selected from the group consisting of ~~an electrical signal~~, a chemical signal, a biological signal, a temperature signal, a pressure signal, a respiration signal, a heart rate signal, a ph-level signal, and a peripheral nerve signal.

13. **(Cancelled).**

14. **(Currently Amended)** ~~The~~ A method of claim 1, wherein the nervous system disorder is selected from the group consisting of ~~a central nervous system disorder~~, a peripheral nervous system disorder, ~~a~~ and mental health disorder, and a psychiatric disorder.

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15. **(Currently Amended)** A medical device system capable of scoring a severity of ~~neurological events sensed neurological signals~~ relating to a nervous system disorder, ~~the system~~ comprising in combination:

- (a) at least one monitoring element, each at least one monitoring element configured to generate ~~generating~~ a neurological signal of a sensed neurological condition; and
- (b) a means for processing configured to detect a neurological event based on an evaluation of the neurological signal and to identify at least one feature of the neurological event for use in scoring, the means for processing further configured to compute a score of relative severity of the neurological event using the identified at least one feature and to rank the neurological event by severity relative to at least one other scored event.
- ~~(b) computer executable instructions for performing the steps of:~~
 - ~~(i) identifying at least one feature of the neurological signal to use in scoring;~~
 - ~~(ii) computing a score of relative severity of the event using the identified feature; and~~
 - ~~(iii) ranking the event by severity relative to at least one other scored event.~~

16. **(Currently Amended).** ~~The~~ A medical device system of claim 15, wherein the ~~monitoring element generates a neurological signal having an neurological event~~ the means for processing is configured to detect is selected from the group consisting of a detected event, a detection cluster event, and a reported event.

17. **(Currently Amended)** ~~The~~ A medical device system of claim 15, wherein the at least one feature the means for processing is configured to identify ~~is step of identifying at least one feature comprises the step of identifying a feature~~ selected from the group consisting of a ~~maximum ratio,~~ a duration of a seizure detection, and a spread, a number of clusters per unit time, a number of detections within a detection cluster, a duration of a detection ~~an event~~ cluster, a duration of a detection, and an inter-seizure interval.

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18. ((Currently Amended) The-A medical device system of claim 15, wherein the computer means for processing is further configured to executable instructions further performs the step of (iv) communicate ~~communicating~~ the ranked neurological events to an external device.

19. (Currently Amended) The-A medical device system of claim 15, wherein the computer means for processing is further configured to cause the ranked neurological events to be displayed. ~~executable instructions further performs the step of (iv) displaying the ranked events.~~

20. (Currently Amended) The-A medical device system of claim 15, wherein the means for processing is positioned in step of ranking is performed by at least one device selected from the group consisting of an external device and an implanted device.

21. (Currently Amended) The-A medical device system of claim 15, wherein the means for processing is further configured to identify the feature ~~step of identifying is performed~~ using algorithm-based measures of activity of the nervous system disorder.

22. (Currently Amended) The-A medical device system of claim 21, wherein the nervous system disorder is a seizure and the means for processing is further configured to compute the score by relating duration, intensity, and extend of electrographic spread of the nervous system disorder ~~step of computing is performed relating duration, intensity, and extent of electrographic spread of the nervous system disorder.~~

23. (Currently Amended) The-A medical device system of claim 15, wherein the means for processing is further configured to step of computing comprises the step of allowing a user to exclude a certain neurological event from being scored.

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24. (Currently Amended) ~~The~~ A medical device system of claim 15, wherein the means for processing is configured to identify at least one feature is selected from the group consisting of a maximal intensity of the event, a number of monitoring elements involved in the event, a number of clusters per unit time, a number of detections within a cluster, a duration of a detection ~~an event~~ cluster, a duration of a detection, and an inter-seizure interval.

25. (Currently Amended) ~~The~~ A medical device system of claim 15, wherein the means for processing is further configured to determine step of computing ~~comprises the step of computing~~ a relative severity minimum, whereby in which the lowest relative severity score associated with clinical manifestations or other behaviors indicative of a nervous system disorder activity may be used to minimize a probability of missing clinical events.

26. (Currently Amended) ~~The~~ A medical device system of claim 15, wherein the at least one monitoring element is configured to generate the neurological signal ~~step of receiving comprises the step of receiving the neurological signal~~ selected from the group consisting of ~~an~~ electrical signal, a chemical signal, ~~a biological signal~~, a temperature signal, a pressure signal, a respiration signal, a heart rate signal, and a ph-level signal, ~~and a peripheral nerve signal~~.

27. (Currently Amended) ~~The~~ A medical device system of claim 15, wherein the ~~step of receiving comprises the step of receiving the signal from the~~ at least one monitoring element is selected from the group consisting of an electrode and a sensor.

28. (Currently Amended) ~~The~~ A medical device system of claim 15, wherein the nervous system disorder is selected from the group consisting of a central nervous system disorder, a peripheral nervous system disorder, a ~~and~~ mental health disorder, and a ~~and~~ psychiatric disorder.

29. (Cancelled).

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30. **(Currently Amended)** ~~The~~ A medical device system of claim 15, wherein the ~~means for processing is positioned computer-executable instructions are~~ within an implanted device.

31. **(Cancelled)**

32. **(Currently Amended)** ~~The~~ A medical device system of claim ~~30-15~~, further comprising:

(c) an external device having a display for displaying the ranked events.

33. **(New)** A method for determining the severity of a detection cluster comprising:

(a) determining that a sensed neurological signal represents a detection cluster;

(b) identifying at least one feature in the detection cluster;

(c) computing a score of relative severity of the detection cluster using the identified at least one feature; and

(d) ranking the detection cluster by severity relative to previously scored detection clusters.

34. **(New)** The method of claim 33, wherein the at least one feature identified in (b) is selected from the group consisting of a spread of the detection cluster, a number of detection clusters per unit time, a number of detections within the detection cluster, a detection cluster severity, and an inter-seizure interval.

35. **(New)** The method of claim 33, wherein the computing of the score in (c) comprises:

(i) computing a relative severity minimum, in which the lowest relative severity score associated with clinical manifestations or other behaviors indicative of a nervous system disorder activity may be used to minimize a probability of missing clinical events.

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36. (New) The method of claim 33, wherein the computing of the score in (c) comprises:

- (i) allowing a user to exclude a certain event from being scored.

37. (New) The method of claim 33, wherein (b)-(d) occur after the detection cluster has ended.

38. (New) A method for determining the severity of a detected neurological event comprising:

- (a) receiving a neurological signal;
- (b) processing the neurological signal to detect a neurological event;
- (c) characterizing at least one feature of the detected neurological event; and
- (d) computing a score of severity of the neurological event based on the at least one feature.

39. (New) The method of claim 38, further comprising:

- (e) ranking the neurological event relative to at least one other neurological event, the ranking based on the severity score.

40. (New) The method of claim 39, wherein the feature characterized in (c) is selected from the group consisting of a spread of the detection cluster, a number of detection clusters per unit time, a number of detections within the detection cluster, a detection cluster severity, and an inter-seizure interval

41. (New) The method of claim 39, wherein the computing in (d) comprises:

- (i) computing a relative severity minimum, in which the lowest relative severity score associated with clinical manifestations or other behaviors indicative of a nervous system disorder activity may be used to minimize a probability of missing clinical events.

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42. (New) The method of claim 39, wherein the computing in (d) comprises:
- (i) allowing a user to exclude a certain event from being scored.
43. (New) The method of claim 38, wherein (c)-(d) occur after the detected neurological event has concluded.

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